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TITLE: Remote health monitoring apparatus using scripted communications

Abstract Paragraph:

A system for remotely monitoring an individual. The system includes a server system for generating a script program from a set of queries. The script program is executable by a remote apparatus that displays information and/or a set of queries to the individual through a user interface. Responses to the queries that are entered through the user interface together with individual identification information are sent from the remote apparatus to the server system across a communication network. The server system also includes an automated answering service for providing a series of questions from a stored set of questions for an individual at the remote apparatus to respond to, storing responses to each provided question in the series of questions and providing a service based on the individual's response to the questions.

Summary of Invention Paragraph:

[0009] In the United States alone, over 100 million people have chronic health conditions, accounting for an estimated \$700 billion in annual medical costs. In an effort to control these medical costs, many healthcare providers have initiated outpatient or home healthcare programs for their patients. The potential benefits of these programs are particularly great for chronically ill patients who must treat their diseases on a daily basis. However, the success of these programs is dependent upon the ability of the healthcare providers to monitor the patients remotely to avert medical problems before they become complicated and costly. Further, success requires compliance with the program, which is often dependent on providing messages or other reminders to patients so that they will stay with the program. Unfortunately, no convenient and cost effective monitoring system exists to accomplish these objectives. While these problems are particularly acute for the poor and the elderly, all demographic groups could significantly benefit from remote communication and monitoring systems.

Brief Description of Drawings Paragraph:

[0026] FIG. 6A is a listing of a sample script program according to the preferred embodiment of the invention;

Brief Description of Drawings Paragraph:

[0027] FIG. 6B is a continuation of the listing of FIG. 6A;

Detail Description Paragraph:

[0050] FIG. 2 shows the server 18, the workstation 20, and the apparatus 26 in greater detail. The server 18 includes a database 38 for storing script programs 40. The script programs 40 are executed by each apparatus 26, to communicate queries and messages to a patient, receive responses 42 to the queries, collect monitoring device measurements 44, and to transmit responses 42 and measurements 44 to the server 18. The database 38 is designed to store responses 42 and measurements 44. The database 38 further includes a look-up table 46. The table 46 contains a list of the patients to be monitored, and for each patient, a unique patient identification code and a respective pointer to one or more script programs 40 assigned to the patient. Each remotely programmable apparatus 26 is designed to

execute assigned script programs 40 received from the server 18. The script programs 40 may include queries, reminder messages, informational statements, useful quotations, or other information of benefit to the patient. See Appendix A for example script programs.

Detail Description Paragraph:

[0062] In the preferred embodiment, each script program 40 created by script generator 50 conforms to the standard file format used on UNIX systems. In the standard file format, each command is listed in the upper case and followed by a colon. Every line in the script program 40 is terminated by a linefeed character {LF}, and only one command is placed on each line. The last character in the script program 40 is a UNIX end of file character {EOF}. Table 1 shows an exemplary listing of script commands used in the preferred embodiment of the invention.

Detail Description Paragraph:

[0068] Referring again to FIG. 2, the report generator 54 is designed to generate a patient report 58 from the responses 42 and the device measurements 44 received in the server 18. The patient report 58 is displayed on the workstation 20. FIG. 10 shows a sample patient report 58 produced by the report generator 54 for a selected patient. The patient report 58 includes a graph 116 of the device measurements 44 received from the patient, as well as a listing of the responses 42 received from the patient. Specific techniques for writing a report generator program to display data in this manner are well known in the art.

Detail Description Paragraph:

[0113] Genetic testing allows an individual to determine whether or not he or she has a predisposition to a certain disease. The degree of expressivity of a certain disease will be determined in part by an individual's environment and lifestyle. The environment and lifestyle information is retrieved from responses to queries sent from the server 18 to the apparatus 26 or from the server 18 to the apparatus 26 through the broadcast network 36. The present invention interprets a patient's gene sequence information and his or her environment and lifestyle to come up with a personalized prognosis. This procedure can be repeated many times over the course of a disease state to monitor a patient's condition. In addition, disease-causing pathogens can also have their genes sequenced. Using these sequences in combination with information about a patient's environment and lifestyle, the present invention comes up with a personalized treatment plan, ideally to eliminate the pathogen. It is also possible to use the procedure described above to monitor the course of the disease-state produced by a pathogen. Finally, a genotype-to-phenotype map or database can be constructed for developing better treatments and aiding in research.

CLAIMS:

14. The apparatus of claim 11 wherein the one or more monitoring devices is selected from the group consisting of: blood glucose meter; peak flow meter; and EKG.

15. The apparatus of claim 11 wherein the one or more monitoring devices is selected from the group consisting of: blood pressure cuff; electronic weight scales; pulse rate monitors.

33. The method of claim 29 wherein the one or more monitoring devices is selected from the group consisting of: blood glucose meter; peak flow meter; and EKG.

34. The method of claim 29 wherein the one or more monitoring devices is selected from the group consisting of: blood pressure cuff; electronic weight scales; pulse rate monitors.

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